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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/056,924	01/25/2002	Edward G. Price	T9242.NP	3996

7590

03/27/2003

Steve M. Perry
THORPE, NORTH & WESTERN, L.L.P.
P.O. Box 1219
Sandy, UT 84091-1219

EXAMINER

PHAN, THO GIA

ART UNIT	PAPER NUMBER
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2821

DATE MAILED: 03/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/056,924

Applicant(s)

PRICE ET AL.

Examiner

Tho G. Phan

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-- Th MAILING DATE of this communication appears on th cover sh t with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. 6) ☐ Other: _____

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DETAILED ACTION

Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification and the claims.

Claim Objections

1. Claims 12, 15 are objected to because of the following informalities:

In claim 12, line 1, "13" should be changed to --11--.

In claim 15, line 3, "an" should be changed to --a--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. Claims 15-21 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 15, line 7, the language, "the connection point" lacks a proper antecedent basis.

In claim 16, line 1, the language, "the length" lacks a proper antecedent basis.

In claim 21, line 3, the language, "the helical antenna" lacks a proper antecedent basis.

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Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-5, 7-8, 10-16 and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over McConnell et al (5,635,945).

McConnell et al in figures 1-5 disclose a helical antenna comprising a dielectric rod 12 mounted on the base plate 24, a conductive helix 20 surrounding the dielectric rod and a tapered matching network 36,46,26 connected to the conductive helix to match an impedance of the conductive helix with an impedance of the input signal. McConnell et al have been discussed above but fail to expressly teach the helix having a pitch angle of at least 12 degrees, and the length of the tapered strip line matching network is 1/4 of the signal wavelength. It would have been an obvious design expedient to provide McConnell et al with the helix having a pitch angle of at least 12 degrees, and the length of the tapered strip line matching network is 1/4 of the signal wavelength, because the angle/length of the helix/tapered strip-line may be empirically adjusted to provide appropriate tuning for the antenna.

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Regarding the acetal resin dielectric rod is Delrin; it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the dielectric rod comprising one of Delrin material, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice.

Regarding the matching network forms a triangularly/crescent shaped matching network or different geometric shapes. It would have been an obvious matter of design choice to have the strip line being shaped as triangularly/crescent or different geometric shapes, since such a modification would have involved a mere change in the shape or profile of a component. A change in shape or profile is generally recognized as being within the level of ordinary skill in the art.

5. Claims 1-5, and 7-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sydor (5,479,182).

Sydor in figures 1-9 discloses a helical antenna comprising a dielectric rod 16 mounted on the base plate 30, a conductive helix 20 surrounding the dielectric rod and a tapered matching network 22 connected to the conductive helix to match an impedance of the conductive helix with an impedance of the input signal. Sydor has been discussed above but fails to expressly teaches the helix having a pitch angle of at least 12 degrees,

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and the length of the tapered strip line matching network is $1/4$ of the signal wavelength. It would have been an obvious design expedient to provide Sydor with the helix having a pitch angle of at least 12 degrees, and the length of the tapered strip line matching network is $1/4$ of the signal wavelength, because the angle/length of the helix/tapered strip-line may be empirically adjusted to provide appropriate tuning for the antenna.

Regarding the acetal resin dielectric rod is Delrin; it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the dielectric rod comprising one of Delrin material, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice.

Regarding the matching network forms a triangularly/crescent shaped matching network or different geometric shapes. It would have been an obvious matter of design choice to have the strip line being shaped as triangularly/crescent or different geometric shapes, since such a modification would have involved a mere change in the shape or profile of a component. A change in shape or profile is generally recognized as being within the level of ordinary skill in the art.

6. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over McConnell/Sydor in view of Openlander (6,292,156).

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McConnell/Sydor have been discussed above but fail to teach a radome. However, Openlander in figure 2 shows a radome 50. It would have been obvious to one of an ordinary skill in the art at the time the invention was made to employ the radome as taught by Openlander for the purpose of increasing and maximizing its performance.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The patents to Thill, Chun and Tay et al are cited as of interest and illustrate a similar structure to a helical antenna assembly.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner THO G. PHAN whose telephone number is (703) 308-3051.

9. Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center receptionist whose telephone number is (703) 308-0956.

10. Papers related to Technology Center 2800 applications **only** may be submitted to Technology Center 2800 by facsimile transmission. Any transmission not to be considered an official response must be clearly marked "DRAFT". The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30

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(November 15, 1989). The Technology Center Fax Center number is (703) 308-7722 or (703) 308-7724.



THO G. PHAN

Patent Examiner

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March 20, 2003